## Appendix J Example of a Marine Wildlife Contingency Plan

Under current practice, the CSLC uses a standardized general permit, which requires compliance with all provisions therein, including, but not limited to, provisions that require the permit holder to develop a Marine Wildlife Contingency Plan (MWCP) that includes, at a minimum:

- Measures that specify the distance, speed, and direction transiting vessels would maintain when in proximity to a marine mammal or reptile;
- Qualifications, number, location, and authority of onboard marine mammal and reptile monitors;
- Methods to reduce noise levels generated by geophysical equipment; and
- Reporting requirements in the event of an observed impact to marine organisms.

The following appendix contains an example of an MWCP. The example MWCP was prepared in 2011 for a proposed high resolution 3D marine geophysical survey in San Luis Bay, offshore San Luis Obispo County. Only main text components of the MWCP have been reproduced for this appendix. MWCP appendix material, including vessel specifications, marine wildlife descriptions, onboard observations reporting form, specialty monitoring report, and the compliance summary report, may be obtained via request to the CSLC.

## MARINE WILDLIFE CONTINGENCY PLAN

# HIGH RESOLUTION 3D MARINE GEOPHYSICAL SURVEY San Luis Bay

Prepared for FUGRO CONSULTANTS, INC. SURVEY DIVISION

November 2011

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## 1.0 INTRODUCTION

This Marine Wildlife Contingency Plan (MWCP) has been developed for Fugro Consultants, Inc (Fugro) in support of the proposed high-resolution 3D marine survey that is to be conducted as part of Pacific Gas and Electric's (PG&E) ongoing Central California Coast Seismic Imaging Project (CCCSIP). The survey will be conducted within a 10 square kilometer (km²) (3.9 square mile [mi²]) area of the Pacific Ocean offshore San Luis Bay, California (Figure 1). The proposed survey area is located within California state waters.

This MWCP has been prepared in accordance with requirements in Fugro's existing California State Lands Commission (CSLC)-issued non-exclusive geophysical and geologic sampling permit No. 8392 and discusses actions and mitigations that are designed to reduce or eliminate adverse impacts to the marine wildlife (mammals and reptiles) within the project area. This MWCP is specific to the equipment and activities that are proposed for this survey, and the proposed monitoring and mitigations have been shown to be effective in reducing or eliminating potential impacts to marine mammals and turtles, and have been successfully used in agency-approved MWCPs for similar offshore surveys in southern and central California marine waters.

This MWCP includes measures that specify: a) the distance, speed, and direction transiting vessels will maintain when in proximity to marine wildlife; b) qualifications, number, location, and authority of onboard marine mammal and reptile monitors; and c) reporting requirements in the event of an incident and following the completion of the survey.

#### 1.1 PURPOSE AND OBJECTIVES

The survey is designed to collect data on the subsurface faults offshore of a portion of central California's coast south of PG&E's Diablo Canyon Power Plant (DCPP) located near Point Buchon, approximately 12 km (8 mi) south of Morro Bay, California. The survey will provide data to help determine the location and geometry of the subsurface faults offshore San Luis Bay. The proposed survey will utilize a boomer system to collect data that will be used to evaluate the offshore faults.

## 1.2 SURVEY SCHEDULE AND LAYOUT

The survey is scheduled to be initiated during mid-November 2011 and is expected to take 20 days to complete. Seismic reflection survey of accessible areas will be conducted by the M/V *Bluefin* (specifications on the vessel are provided in Appendix A) along southern segment of the Shoreline fault and portions of the Pecho fault. Data will be collected along a series of northeast-southwest pre-plotted primary transect lines.

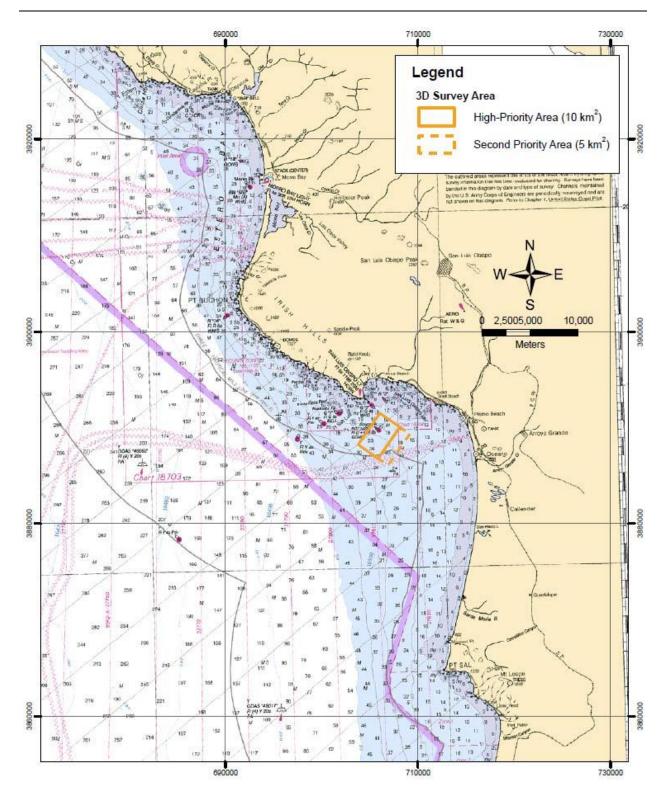


Figure 1. Regional Map of Survey Area

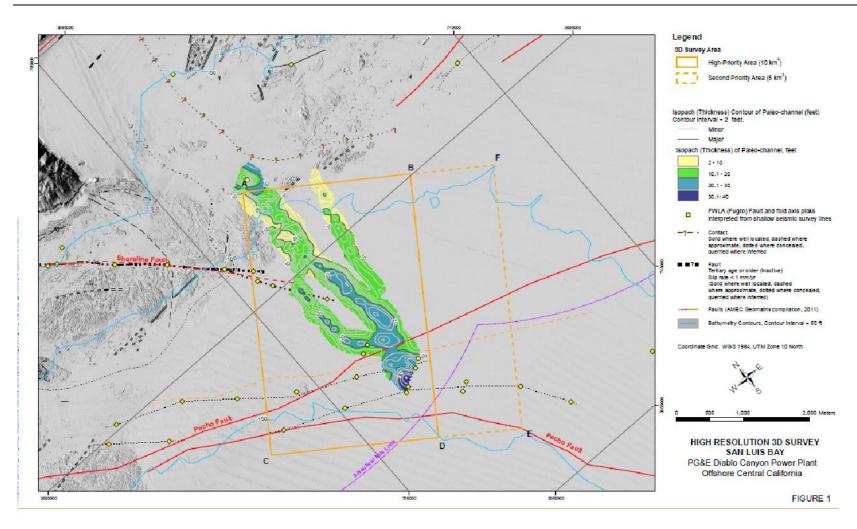


Figure 2.Proposed Survey Area

A review of Figure 1 suggests that water depths within the survey area range from 22 to 55 m (72 to 180 ft) and that the seafloor within those water depths is both rocky and sedimentary. Generally, rock substrate is common inshore of the 37 m (120 ft) isobath in the northern portion of the survey area (Figure 2). Survey transect lines will be run along a  $034^{\circ}$  azimuth or the reciprocal ( $204.8^{\circ}$ ).

## 2.0 SURVEY EQUIPMENT AND ACTIVITIES

The survey vessel will be the M/V *Bluefin*, a 52 m- (170 ft-) long, steel-hulled vessel owned and operated by F/V North Wind, Inc. Only daylight data collection will be conducted with the MV *Bluefin* returning to San Luis Bay each evening. Details on the survey vessel are provided in Appendix A.

Fugro proposes to use the following equipment to collect the required data:

- Odom Echotrac Sounder or the vessel's onboard fathometer
- Triple Plate AP3000 boomer (sound source) GeoEel CNT-2 Controller (recording system)
- P-Cable system with 12 to 18 multi-channel streamers (sound receivers)

The proposed survey will require the use of a marine vessel and in-water equipment that generate noise during data acquisition. The results of modeling of the noise generated by the survey equipment is shown in Table 1. Those results indicate that the area within which the 160 dB re: 1µPa rms sound level (the level specified by NOAA as potentially harmful to sensitive marine mammals) can be observed by monitors onboard the survey vessel. The effects of underwater noise on sea turtles are not well studied; however NOAA considers the 190 dB re 1µPa rms sound level to be detrimental to sea turtles (Fahy, personnel communication).

Table 1. Distances to Received Pressure Levels from Equipment Sound Source

| Sounder System                               | Frequency<br>(kHz) | Source<br>Level (dB<br>peak) | Source<br>Level (dB<br>rms) | Distance<br>to SL 140<br>dB rms<br>(meters) | Distance<br>to SL 160<br>dB (rms)<br>(meters) | Distance<br>to SL 180<br>dB (rms)<br>(meters) |
|--|--------------------|------------------------------|-----------------------------|---|---|---|
| Odom Echotrac Sounder                        | 240 kHz            | 210                          | 207                         | 170   | 75  | 17  |
| Triple Plate AP3000 boomer (operating at 1.5 | 750 to 3500        | 216                          | 204                         | 1600  | 160   | 16  |
| to 1.8 kJ)                                   | Hz                 |                              |                             |   |   |   |

Source: Greene, 2008

The greatest distance from the sound source to the 160 dB level (160 m [525 ft] for the proposed equipment) will be the "safety zone" used by onboard monitors. Prior to equipment start-up, marine mammals/reptiles within that zone will be noted and if any of those animals show behavioral changes during equipment start-up, the equipment will be shut-down until the animal(s) move out of the safety zone or until the animal(s) has/have not been observed for 15 minutes. Following shutdown, equipment will be "ramped up" to full power.

## 3.0 MARINE WILDLIFE

## 3.1 MARINE WILDLIFE

The marine mammals along the central California coast include 18 cetaceans (whales, dolphins, and porpoises), six pinnipeds (seals and sea lions), and one fissiped (southern sea otter). Seasonal abundance of these taxa varies, with pinnipeds and some dolphins being considered year-round residents, while other species are migratory (i.e. gray whales [Eschrichtius robustus]) or are most common during specific months (i.e. blue and humpback whales [Balaenoptera musculus and Megaptera novaeangliae, respectively] in the summer and fall months). Within the project area, both residents and migrant taxa could be expected.

During a similar survey that was completed in 2010 in similar water depths to the north of the project area (Padre, 2011), and as reported in other marine mammal monitoring reports (Tenera, 2007; Tenera, 2008), commonly observed species within the project region included: gray (*Eschrichtius robustus*), humpback (*Megaptera novaeangliae*), Minke (*Balaenoptera acutorostrata*), and killer (*Orcinus orca*) whales; common, bottlenose, and Risso's dolphins (*Delphinus capensis, Tursiops truncates*, and *Grampus griseus*, respectively); California sea lions (*Zalophus californianus*); Dall's porpoise (*Phocoenoides dalli*); blue whales (*Balaenoptera musculus*); Pacific harbor seals (*Phoca vitulina richardsi*), and southern sea otters (*Enhydra lutris nereis*). The elephant seal (*Mirounga angustirostris*), was also occasionally observed and reported in those studies.

Table 2 lists the marine wildlife that could be expected within the project region and Table 3 provides information on the seasonal abundance of those taxa within the project area. That list includes four species of marine turtles: Pacific Ridley sea turtle (*Lepidochelys olivacea*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead turtle (*Caretta caretta*), and green sea turtle (*Chelonia mydas*). Marine turtles have been documented off of the DCPP through 2009; all sightings have been green turtles (PG&E, 2009).

Additional information on the biology of these animals is provided in Appendix B.

## 4.0 ONBOARD MONITORING AND OTHER MITIGATIONS

## 4.1 Vessel Transit

Each morning of the proposed survey, the MV *Bluefin* will transit between San Luis Bay and the project site prior to initiating data collection. To maximize the daytime geophysical data collection period, the vessel will transit during low-light periods (up to one hour prior to the predicted sunrise, as provided in the local newspaper, and one hour after the predicted sunset, as provided in the local newspaper). Lighting onboard the MV *Bluefin* will be used to facilitate marine wildlife observations during low-light transit periods.

Table 2. Abundance Estimates for Marine Mammals and Reptiles of California Unless Otherwise Indicated

| Common Name<br>Scientific Name | Population Estimate                    | Current Population Trend                  |
|--------------------------------|--|---|
| REPTILES                       | <u> </u>                               | -   |
| Cryptodira                     |  |   |
| Olive Ridley turtle            | 1.39 million                           | Increasing                                |
| Lepidochelys olivacea          | (Eastern Tropical Pacific)**           | 3   |
| Green turtle                   | 3,319 - 3,479**                        | Increasing                                |
| Chelonia mydas                 | (Eastern Pacific Stock)                | 3   |
| Loggerhead turtle              | 1,000                                  | Decreasing                                |
| Caretta caretta                | (California)**                         | ŭ   |
| Leatherback turtle             | 178                                    | Decreasing                                |
| Dermochelys coriacea           | (California)**                         |   |
| MAMMALS                        |  | •   |
| Mysticeti                      |  |   |
| California gray whale          | 18,017                                 | Fluctuating annually                      |
| Eschrichtius robustus          | (Eastern North Pacific Stock)          |   |
| Fin whale                      | 2,624                                  | Increasing off California                 |
| Balaenoptera physalus          | (California/Oregon/Washington Stock)   |   |
| Humpback whale                 | 1,878                                  | Increasing                                |
| Megaptera novaeangliae         | (California/Oregon/Washington Stock)   |   |
| Blue whale                     | 2,046                                  | Unable to determine                       |
| Balaenoptera musculus          | (Eastern North Pacific Stock)          |   |
| Minke whale                    | 202                                    | No long-term trends suggested             |
| Balaenoptera acutorostrata     | (California/Oregon/Washington Stock)   |   |
| Northern right whale           | 17 (based on photo-identification)     | No long-term trends suggested             |
| Eubalaena japonica             | (Eastern North Pacific Stock)          |   |
| Sei whale                      | 83                                     | No long-term trends suggested             |
| Balaenoptera borealis          | (Eastern North Pacific Stock)          |   |
| Odontoceti                     |  |   |
| Short-beaked common dolphin    | 343,990                                | Unable to determine                       |
| Delphinus delphis              | (California/Oregon/Washington Stock)   |   |
| Long-beaked common dolphin     | 17,127                                 | Unable to determine                       |
| Delphinus capensis             | (California Stock)                     |   |
| Dall's porpoise                | 32,106                                 | Unable to determine                       |
| Phocoenoides dalli             | (California/Oregon/Washington Stock)   |   |
| Harbor porpoise                | 1,478                                  | Increasing                                |
| Phocoena phocoena              | (Morro Bay Stock)                      |   |
| Pacific white-sided dolphin    | 21,406                                 | No long-term trends suggested             |
| Lagenorhynchus obliquidens     | (California/Oregon/Washington Stock)   |   |
| Risso's dolphin                | 4,913                                  | No long-term trends suggested             |
| Grampus griseus                | (California/Oregon/Washington Stock)   |   |
| Short-finned pilot whale       | 465                                    | No long-term trends suggested             |
| Globicephala macrorhynchus     | (California/Oregon/Washington Stock)   | N. I                                      |
| Bottlenose dolphin             | 684                                    | No long-term trends suggested             |
| Tursiops truncates             | (California/Oregon/Washington Offshore |   |
|                                | Stock)                                 | No less transcription                     |
|                                | 290                                    | No long-term trends suggested             |
| Newthern Publish 1997          | (California Coastal Stock)             | No less transcription                     |
| Northern right whale dolphin   | 6,019                                  | No long-term trends suggested             |
| Lissopelphis borealis          | (California/Oregon/Washington Stock)   | l N I i i i i i i i i i i i i i i i i i i |
| Sperm whale                    | 751                                    | No long-term trends suggested             |
| Physeter macrocephalus         | (California/Oregon/Washington Stock)   |   |

| Common Name<br>Scientific Name | Population Estimate                       | Current Population Trend           |
|--------------------------------|---|------------------------------------|
| Killer whale                   | 85  | Decreasing                         |
| Orcinus orca                   | (Eastern North Pacific Southern Resident  |                                    |
|                                | Stock)                                    |                                    |
|                                | 162                                       | No long-term trends suggested      |
|                                | (Eastern North Pacific Offshore Stock)    |                                    |
| Pinnipedia                     |   |                                    |
| California sea lion            | 141,842                                   | Unable to determine; increasing in |
| Zalophus californianus         | (U.S. Stock)                              | most recent three year period      |
| Northern fur seal              | 5,395                                     | Increasing                         |
| Callorhinus ursinus            | (San Miguel Island Stock)                 |                                    |
| Guadalupe fur seal             | 3,028                                     | Increasing                         |
| Arctocephalus townsendi        | (Mexico Stock) Undetermined in California |                                    |
| Northern (Steller) sea lion    | 2,479                                     | Decreasing                         |
| Eumetopias jubatus             | California Stock                          |                                    |
| Northern elephant seal         | 74,913                                    | Increasing                         |
| Mirounga angustirostris        |   |                                    |
| Pacific harbor seal            | 31,600                                    | Stable                             |
| Phoca vitulina richardsi       |   |                                    |
| Fissipedia                     |   |                                    |
| Southern sea otter             | 2,711*                                    | Unable to determine                |
| Enhydra lutris nereis          |   |                                    |

Estimates provided by National Marine Fisheries Service (NOAA Fisheries 2011)

During the transit periods, there is a potential for encountering marine wildlife and therefore onboard monitoring will occur. At least two qualified (approved by NOAA and/or experienced in marine wildlife observations) marine wildlife monitors will be onboard the vessel throughout the periods of transit and data collection.

Dolphins can usually be identified from a distance due to the surface disturbance created as they swim. Dolphins generally tolerate or even approach vessels and reactions to boats often appear to be related to the dolphins' normal activity. Resting and foraging dolphins tend to avoid boats while socializing dolphins will often "run" with a boat leaping from the water, or riding the bow or stern wakes. If dolphins are observed riding the boat's wake or swimming immediately adjacent to the vessel, the vessel would slow down and keep a steady course until the dolphins lose interest.

Very little information on pinnipeds' responses to vessels is available; however sea lions in the water often tolerate close and frequent approaches by vessels. California sea lions are the only pinniped within the project area that regularly haul-out on man-made structures such as docks, buoys, oil and gas structures and even slow moving vessels. Bartholomew, 1967 suggests sea lions that are hauled-out on land are more responsive than when they are in the water and react when boats approach within 100 to 200 m (330 to 660 ft). Harbor seals also often move into the water in response to approaching boats. Even small boats that approach within 100 m (330 ft) displace harbor seals from haul out areas. Less severe disturbances can cause alert reactions without departure.

<sup>\*</sup> Estimate provided by USGS (2010)

<sup>\*\*</sup> Estimates provided by National Marine Fisheries Service (NMFS) (2004), Marquez, et al. (2002), Eguchi et al. (2007), Benson et al. (2007), and NMFS (2007). Estimates are based on number of current numbers of nesting females.

## Table 3. Marine Wildlife Species and Most Likely Periods of Occurrence within the Project Area

| Family                          | Month of Occurrence (1)   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name                     | J   | F | M | Α | M | J | J | Α | S | 0 | N | D |
| REPTILES                        |   |   |   |   |   |   |   |   |   |   |   |   |
| Cyptodira                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Olive Ridley turtle (T) (2)     |   |   |   |   |   |   |   |   |   |   |   |   |
| Green turtle (T) (1) (2)        |   |   |   |   |   |   |   |   |   |   |   |   |
| Loggerhead turtle (T) (2)       |   |   |   |   |   |   |   |   |   |   |   |   |
| Leatherback turtle (E) (2)      |   |   |   |   |   |   |   |   |   |   |   |   |
| MAMMALS                         |   |   |   |   |   |   |   |   |   |   |   |   |
| Mysticeti                       |   |   |   |   |   |   |   |   |   |   |   |   |
| California gray whale           |   |   |   |   |   |   |   |   |   |   |   |   |
| Blue whale (E)                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Fin whale (E)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Humpback whale (E)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Minke whale                     |   |   |   |   |   |   |   |   |   |   |   |   |
| Sei whale (E)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Northern right whale (E)        |   |   |   |   |   |   |   |   |   |   |   |   |
| Odontoceti                      |   |   |   |   |   |   |   |   |   |   |   |   |
| Short-beaked common dolphin     |   |   |   |   |   |   |   |   |   |   |   |   |
| Dall's porpoise                 |   |   |   |   |   |   |   |   |   |   |   |   |
| Harbor porpoise                 |   |   |   |   |   |   |   |   |   |   |   |   |
| Long-beaked common dolphin      |   |   |   |   |   |   |   |   |   |   |   |   |
| Pacific white-sided dolphin     |   |   |   |   |   |   |   |   |   |   |   |   |
| Risso's dolphin                 |   |   |   |   |   |   |   |   |   |   |   |   |
| Sperm whale                     |   |   |   |   |   |   |   |   |   |   |   |   |
| Short-finned pilot whale        |   |   |   |   |   |   |   |   |   |   |   |   |
| Bottlenose dolphin              |   |   |   |   |   |   |   |   |   |   |   |   |
| Northern right whale dolphin    |   |   |   |   |   |   |   |   |   |   |   |   |
| Killer whale                    |   |   |   |   |   |   |   |   |   |   |   |   |
| Pinnipedia                      |   |   |   |   |   |   |   |   |   |   |   |   |
| Northern fur seal (3)           |   |   |   |   |   |   |   |   |   |   |   |   |
| California sea lion             |   |   |   |   |   |   |   |   |   |   |   |   |
| Northern elephant seal (4)      |   |   |   |   |   |   |   |   |   |   |   |   |
| Pacific harbor seal             |   |   |   |   |   |   |   |   |   |   |   |   |
| Guadalupe fur seal (T)          |   |   |   |   |   |   |   |   |   |   |   |   |
| Steller sea lion                |   |   |   |   |   |   |   |   |   |   |   |   |
| Fissipedia                      |   |   |   |   |   |   |   |   |   |   |   |   |
| Southern sea otter (T) (5)      |   |   |   |   |   |   |   |   |   |   |   |   |
| Relatively uniform distribution | Not expected to occur Most likely to occur due to seasonal distribution |   |   |   |   |   |   |   |   |   |   |   |

- (E) Federally listed endangered species. (T) Federally listed threatened species.
- (1) Not Used
- (2) Rarely encountered, but may be present year-round. Greatest abundance during July through September.
- (3) Only a small percent occur over continental shelf (except near San Miguel rookery, May-November).
- (4) Common near land during winter breeding season and spring molting season.(5) Only nearshore (diving limit 100 feet).

Sources: Bonnell and Dailey (1993), NOAA Fisheries (2011), NCCOS (2007)

Based on documented pinniped behavioral patterns, implementation of avoidance measures and the presence of marine wildlife monitors (as previously discussed) would be expected to minimize the chance for a vessel/pinniped collision. Should a sea lion, harbor seal, or other pinniped be hauled-out in an area where harm may come to the animal, the NOAA Long Beach office will be consulted for guidance on how to encourage the animal to move without harassing the animal(s).

Cetaceans (whales) vary in their swimming patterns and duration of dives and therefore the onboard marine wildlife monitors and all shipboard personnel will be watchful as the vessel crosses the path of a whale or anytime whales are observed in the area.

During transit periods, a marine wildlife monitor will be positioned on the vessel so that he/she will have a clear view of the area in the direction of and adjacent to the course of travel. That monitor will note and record the presence of marine wildlife and will institute measures to avoid potential collisions with those animals. To minimize the chance of collision with or disturbance of marine mammals and turtles, the vessel will maintain a minimum distance of 100 m (330 ft) from observed animals. This distance exceeds the recommended distance set by NOAA which suggests vessels remain 100 yards (300 ft) from whales; no minimum distance is specified for marine reptiles.

If the marine wildlife monitor observes a marine mammal or reptile within the path of the transiting vessel, he/she will immediately report that observation to the vessel operator who will, unless those actions will jeopardize the safety of the vessel or crew, slow the vessel and/or change course in order to avoid contact.

If whales are observed during transit periods, the vessel operator will institute the following measures:

Maintain a minimum distance of 100 m (330 ft) from sighted whales;

- Do not cross directly in front of or across the path of sighted whales;
- Transit parallel to whales and maintain a constant speed that is not faster than the whale's speed;
- Do not position the vessel in such a manner to separate female whales from their calf(ves);
- Do not use the vessel to herd or drive whales; and,
- If a whale engages in evasive or defensive action, slow the vessel and move away from the animal until the animal calms or moves out of the area.

## 4.2 FISHING GEAR CLEARANCE

In addition to submitting the required Notice to Mariners that will advise commercial fishers of pending on-water activities, prior to the start of each survey day, the vessel will traverse the proposed survey corridor for that day to note and record the presence of deployed fishing gear. The type and location of fishing gear (buoys) that is observed will be noted, and the California Department of Fish & Game (CDFG) San Luis Obispo field office will be contacted.

Sandy Owen
San Luis Obispo Field Office
3196 South Higuera St., Suite A
San Luis Obispo, Ca 93401
(805) 772-1261
SLOwen@dfg.ca.gov

No survey lines within 30 m (100 ft) of the observed fishing gear will be completed. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFG agent.

## 4.3 SURVEY MONITORING

Three days prior to the initiation of the survey, Padre marine scientists will contact NOAA's Long Beach office staff and local private whale-watching operations to acquire information on the current composition and relative abundance of marine wildlife offshore Avila Beach and surrounding area. That information will be conveyed to the Survey Party Chief, the vessel operator and crew prior to departure from Avila Harbor.

The onboard monitors responsible for observations during vessel transit will also be responsible for monitoring during the data collection efforts. That monitoring will be from a high vantage point onboard the survey vessel; binoculars will be used to observe the surrounding area. The monitor will survey an area at least 160 m (525 ft) in all directions centered on the sound source (towed array behind the vessel) throughout the period of time that the survey equipment is operating. The 160 m (525 ft) distance is the distance to the 160 dB noise level shown in Table 1.

Should the monitor observe marine wildlife displaying unusual behavior while within the safety zone, the equipment will be shut down and the safety zone will be expanded in 25 m (85 ft) increments. The equipment will be re-started (ramped up) and if no effects of the operation on marine wildlife are observed, the survey will continue. If the animal(s) show negative or unusual reactions, the shut down/re-start procedure will be repeated. The expanded safety zone distance will be maintained for the remainder of that survey day.

The onboard monitors will have the authority to recommend that operations be stopped if a mammal or turtle is observed within the specified safety zone and is negatively affected by the survey activities. The monitors will also have the authority to recommend continuation (or cessation) of operations during periods of limited visibility (i.e. fog) based on the observed abundance of marine wildlife. Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation will be completed by the onboard monitors.

#### 4.4 NOISE EFFECTS

Although the proposed survey is not classified as a high energy seismic survey, this MWCP has adopted guidelines and procedures developed as part of the High Energy Seismic Survey (HESS) Program which are also consistent with the operational conditions for the existing CSLC geophysical and geological sampling permit. The High Energy Seismic Survey Team (HESST), comprising staff from the CSLC, the U.S. Minerals Management Service (now the BOEMRE) and representatives of environmental groups, established interim guidelines for the high energy seismic surveys offshore southern California (HESST, 1999). Those guidelines utilize the results of several studies on the effects of noise on marine mammals and reptiles, identify noise levels that are considered likely to harass those animals, and suggest the establishment of safety zones and other mitigations that would reduce or eliminate potential impacts to those organisms.

Fugro proposes to institute mitigations that are consistent with the HESST recommendations and which are based on project-specific noise modeling of the equipment that is proposed for this survey. Greene, 2008 calculated the distance from the sound source (survey equipment that is proposed for this survey) to various noise levels (dB re: 1µPa-m [rms]). Table 1 above lists the distances to the 160 dB re: 1µPa-m (rms), the NOAA-established sound level that could result in impacts to marine wildlife. The distance to that sound level for the equipment used in this survey will determine the radius of safety zone.

## 4.5 MITIGATION MEASURES

In addition to the measures discussed above, the following operation-related actions will be implemented:

- 1) Prior to initiating geophysical data collection, in-place fishing gear will be noted and avoided.
- 2) No acoustic pulse-generating equipment will be operated if, prior to start-up, a marine mammal and/or marine reptile is within the safety zone. The onboard monitor will continually observe the surrounding area and will immediately inform Fugro's onboard Survey Party Chief and the vessel operator if any marine wildlife is observed within the designated safety zone and corrective action will be taken.
- 3) During operations, if an animal's actions are observed to be "irregular" the monitor will have the authority to recommend that data collection be stopped until the animal moves out of the safety zone. If that behavior is observed, the equipment will be shut-off and will be restarted and ramped-up to full power or will not be started until the animal(s) is/are outside of the safety zone or have not been observed for 15 minutes.

4) Unless the safety of the vessel or crew would be in jeopardy, avoidance measures instituted during vessel transit will be utilized during geophysical data collection.

## 5.0 RECORDING AND REPORTING PROCEDURES

#### 5.1 OBSERVATION RECORDING

The onboard Marine Mammal Observers will record observations on pre-printed forms, an example of which is provided in Appendix C. In addition, daily Specialty Monitoring Reports, an example of which is provided in Appendix D, will be submitted to the PG&E Environmental Compliance Lead, the Geophysical Contractor, the Environmental Compliance Lead, and the PG&E Environmental Discipline Lead (Figure 3). Each week, the Padre Environmental Compliance Lead will compile these reports into a Compliance Summary Report (Appendix E). These weekly reports will be forwarded to the PG&E Environmental Compliance Lead and the Geophysical Contractor (Figure 4). The completed forms will be used as the primary data sources for the post-survey report (see Section 5.3 below) which will be provided by Fugro (or PG&E) to the CSLC and other agencies if requested.

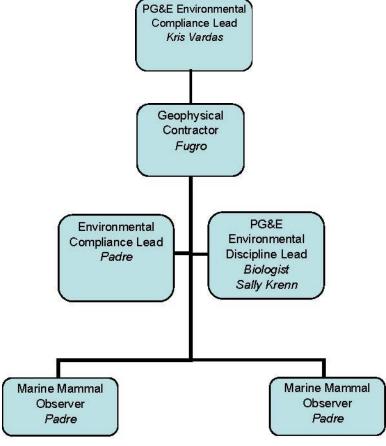


Figure 3. Daily Monitoring Report Routing

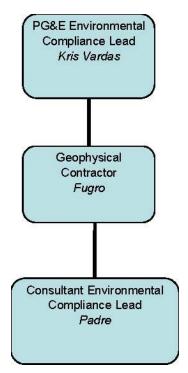


Figure 4. Weekly Compliance Summary Report Routing

## 5.2 COLLISION RESPONSE

If a collision with marine mammal or reptile occurs, the vessel operator must document the conditions under which the accident occurred, including the following:

- location (latitude and longitude) of the vessel when the collision occurred;
- date and time of collision;
- speed and heading of the vessel at the time of collision;
- observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;
- species of marine wildlife contacted (if known);
- whether an observer was monitoring marine wildlife at the time of collision; and,
- name of vessel, vessel owner/operator (the company), and captain or officer in charge of the vessel at time of collision.

After a collision, the vessel should stop, if safe to do so, however the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then communicate by radio or telephone all details to the vessel's base of operations. The Marine Mammal Protection Act (MMPA) requires that collisions with or

other project-resulting impacts to marine wildlife be reported promptly to the NOAA Stranding Coordinator. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA (National Marine Fisheries Service [NMFS]), Southwest Region, Long Beach, to obtain instructions. Alternatively, the vessel captain may contact the NOAA Stranding Coordinator directly using the marine operator to place the call or directly from an onboard telephone, if available to:

NOAA Southwest Regional Stranding Coordinator
National Marine Fisheries Service
501 West Ocean Blvd, Suite 4200
Long Beach, CA 90802-4213
562-980-4017

Contact: Sarah Wilkin Email: sarah.wilkin@noaa.gov

It is unlikely that the vessel will be asked to stand by until NOAA or CDFG personnel arrive, however this will be determined by the Stranding Coordinator. According to the MMPA, the vessel operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NOAA Stranding Coordinator.

Although NOAA has primary responsibility for marine mammals in both state and federal waters, the CDFG will also be advised that an incident has occurred in state waters affecting a protected species. Reports should be communicated to the federal and state agencies listed below:

#### **Federal**

Sarah Wilkin, Stranding Coordinator Southwest Region National Marine Fisheries Service Long Beach, California (562) 980-4017

## State

Enforcement Dispatch Desk California Department of Fish and Game Long Beach, California (562) 590-5132

#### State

California State Lands Commission Mineral Resources Management Division Long Beach, California (562) 590-5071

## 5.3 MONITORING REPORT

A technical report documenting the project activities, observations of marine wildlife, and a summary of encounters with marine mammals and/or turtles and subsequent actions taken during transit and survey periods will be prepared. The report will be submitted to Fugro and PG&E within 30 days of completion of field data collection and will be submitted by Fugro/PG&E to the appropriate agencies.

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